

DISTANCE- LEARNING

First CAS3 Class Outcomes

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THE INSTITUTIONAL Training Divisions' Professional Development Brigades conducted a pilot distance-learning (DL) version of the Combined Arms Services Staff School (CAS3) Course for Reserve Component (RC) classes at Fort Leavenworth, Kansas, in January 2000. The DL version of the class was to determine its suitability for Active Component (AC) as well as RC personnel for whom the weekend and 2-week resident versions of the course were not feasible. For example, some personnel travel frequently and cannot attend a course that meets on the same (and only one) weekend of a month. Others might not be able to attend the second active-duty phase of a class because of work conflicts or other business travel. Some might not want to give up the travel time needed to reach the locations where classes were held. From the Government's perspective, distance learning could save considerable funds by reducing travel expense for students and instructors.

Three DL classes were piloted for the 2001 academic year: Region A (New England and New York), Region F (central plains states), and Region G (western and mountain states). Students from any location could participate. Regions A and F began with a face-to-face meeting between students and

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instructors. Region G began with an electronic meeting only. Each student was given a laptop computer and appropriate software. Students from all three DL classes, along with 19 other CAS3 classes who had completed phase 1 previously through the traditional classroom format, attended phase 2 in residence at Fort Leavenworth in July 2001.

The instructional chain of command gave two separate surveys to the students. One survey was given to all staff groups from all regions. The other survey was given only to staff groups from Region F. The first survey focused on evaluating past staff group training. The second survey focused on determining the extent to which students would want to try distance learning in the future. During the time between surveys, the CAS3 director in-

interviewed students in each DL class to gain individual, qualitative insight on the process.

Of the 194 CAS3 phase 2 students at Fort Leavenworth, 150 responded to the first survey, with 31 not responding because their staff groups (two from Region D and one from Region C) did not participate. Among the remaining 163 who participated, 15 were from Region G, 8 from Region A, 5 from Region C, and 121 from Region F. (One student did not disclose a region.) Altogether, Region G had 24 students, Region D had 21 students, Region C had 20 students, and Region A had 9 students at Fort Leavenworth. Thirteen students among the 163 in the participating staff groups did not respond individually. Of the 150 students who did respond, 25 were DL students from the three DL staff groups. Table 1 presents the demographic breakdown of DL and traditional classroom students who participated in the first survey. In the second survey, 115 of the 138 students responded. Surveys were not returned from two of the Region F staff groups. Table 2 presents demographic data for students who responded to the second survey.

The study had several research goals, four of which were assessed through the first survey. The first goal was to see how well students from both groups (traditional and distance learning) evaluated their learning experiences overall and on specific criteria. The second goal was to determine the relative time each approach required, since one of distance learning's alleged advantages is a saving in travel time. The third goal was to evaluate how RC soldiers were being compensated for each approach. Because distance learning is a new way to perform duty, there was a concern that many reservists might be undercompensated for such duty. A fourth goal was to assess the psychological effect of training time on the students' family and personal lives across the two methods.

Characteristics	DL students (%)	Traditional students (%)
Female students	20	16
Married students	76	70
Students with children under 18 at home	68	68
Moved to a different state since start of CAS3	4	6

Table 1. Demographic characteristics of 150 CAS3 phase 2 students in the first survey

The goal of the second survey was to develop a more detailed scale with which to assess instructor effectiveness. Using the result of instructor effec-

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tiveness, the goal was to assess the relative effectiveness of Region F's DL instructor compared to the effectiveness of more-traditional instructors. The goal was to assess outcomes in terms of future projections regarding U.S. Army Command and General Staff College (CGSC) training (when and how we expected it to be done) as well as in terms of past results. We also compared outcomes for the 8+2 (8 weekends for phase 1) and 2+2 (two weeks active duty for each phase) approaches within the traditional methods of teaching CAS3 with distance learning. We also wanted to compare outcomes as a function of component (U.S. Army National Guard (ARNG), U.S. Army Reserve [USAR], and Active Army).

First Survey Results

Learning experience. The students' opinions of distance learning versus traditional methods yielded mixed results. Seventy-three percent of the traditional CAS3 students rated their training as somewhat or much superior to previous military training. Only 12 percent of DL CAS3 students rated their training as somewhat or much superior to taking the same training in a typical classroom setting. The largest percentage (64 percent) of CAS3 DL students rated

Characteristics	(%)
Gender	
Female	18
Male	82
Component membership	
Army National Guard	59
Reserve Component	38
Active/Guard Reserve	2
Active Component	2
Type of class taken for phase 1 CAS3	
8+2 (weekend)	87.5
2+2 (2 weeks active duty)	3.5
Distance learning	8.8

Table 2. Demographic characteristics of 115 CAS3 phase 2 students in the second survey

their training as better in some aspects, worse in others, overall, about the same, or as somewhat worse (20 percent). The differences were significant statistically ($p < 0.0001$). Regarding more specific aspects of the training, there was not a signifi-

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cant difference for how well students felt they had bonded with their classmates. Ninety-two percent of the traditional students said they had bonded fairly or very well, compared with only 80 percent of DL students who felt that way. Comparable ratings for presentation delivery were 93 percent versus 76 percent ($p < 0.04$), and ratings for improving staff-officer abilities were 94 percent to 88 percent ($p < 0.04$). There were interregional differences in how CAS3 distance learning was rated for improving staff-officer abilities. Region F's class rated it at 100 percent for substantial improvement compared to other regions' rating it at 79 percent.

Travel time. The survey asked all students how much time they spent in traveling to and from training and how much time they spent doing related work (repairing their computers, for example). The survey asked DL students how much time they saved by not having to travel to the nearest traditional CAS3 staff group. Survey results showed that CAS3 DL students saved up to 6 or more hours of travel time each month. They saved an average of 3.44 hours compared to 0.36 hours spent on related work as part of their DL staff group. In the context of a paired samples t-test, this difference ($p < 0.001$)

was very significant statistically. A detailed analysis of time use determined the results for each type of staff group activity per month (table 3). CAS3 DL students saved some travel time, but they applied that time toward more preparation and Internet use. The overall result was that there was no difference in time for CAS3 training. However, CAS3 DL students appeared to spend less time on RC duties, although the presence of a couple of full-time military personnel in the DL group might have skewed the results, in part because their time was credited toward civilian-job hours rather than military-job hours.

Compensation. There is a pay hierarchy for Reservists. At the bottom are those who are paid nothing for their training. Some were allowed to make up drills by attending CAS3; some received drill pay for CAS3 work. A few were allowed additional training days with pay (additional drill assemblies [ADAs]) for CAS3 training. A few were allowed funds for travel (per diem, mileage for personal vehicles) in addition to drill or ADA pay. A few were allowed active duty (Reserve Component Pay and Allowances [RPA]) man-days that, unlike drill or ADA pay, included compensation for housing and subsistence, often with travel funds (if outside of commuting distance). For this analysis, the information from the four officers on active duty was deleted to avoid skewing the results. Compensation differed significantly between the two groups ($p < 0.0002$). (See table 4.)

Intraregional differences existed also. Seventy-one percent of Region G, 50 percent of Region F, and 100 percent of Region A DL students received no pay or received points only. The results indicated that while both groups had a majority of students who were not paid for training time, the problem was much greater for CAS3 DL students, even though both groups dedicated the same amount of time to training.

Training time versus family time. With respect to perceived interference of CAS3 training with personal or family time, there were no differences between the groups. Sixty-nine percent of both groups attributed negative effects to CAS3 training. With respect to complaints from friends or family members about students being away from home too much, there were no statistically significant differences. Only 36 percent of DL students said they received such complaints several times or more often compared with 52 percent of the traditional stu-

Time	Traditional staff group (hours in)	DL staff group (hours in)	Statistically significant
Travel time	2.93	0.36	Yes ($p < 0.001$)
Computer work	1.96	1.48	No
Classroom activity	17.73	19.52	Yes ($p < 0.01$)
Study/preparation	9.34	10.72	No
Overall time	31.96	32.08	No
Overall civilian job hours	194.24	176.67	No ($p < 0.09$)
Overall military job hours	35.54	27.27	Yes ($p < 0.05$)
Total hours (CAS3 + military + civilian)	261.53	233.43	Yes ($p < 0.03$)

Table 3. Time-usage comparisons for distance learning and traditional approaches to CAS3

dents. Despite the lack of statistical significance, it appears that family members or friends of DL students appreciated the reduction in time away from home.

Because of a concern that despite being home physically, time on the computer for class might detract from a student's psychological presence, the survey asked students how often they had received complaints about being absent emotionally while at home. The differences were not statistically significant. Fifty-seven percent of traditional students and 64 percent of DL students reported complaints several times or more often, yet the trend was in the expected direction. More DL students were accused of emotional absence. In terms of overall effect of all employment and training, the groups were not different statistically. Seventy-six percent of traditional students, compared to 88 percent of DL students, reported negative effects, although DL students worked fewer hours overall.

Second Survey Results

Instructor effectiveness. We administered the second survey later in the phase 2B cycle so students had time to consider how phase 2B was going. Each student answered the following three questions about CAS3 during phases 2A and 2B:

1. How well prepared was the instructor (poorly, marginally, adequately, very well, extremely well)?
2. How effective were the delivery skills (not effective, marginally effective, adequately effective, very effective, and extremely effective)?
3. How knowledgeable was the instructor about the subject matter (not at all, marginally, adequately, very, and extremely knowledgeable)?

Scores ranged from 1 to 5 for each item with 1 representing the most effective score. Both scales proved to have high scientific reliability, as measured

by Cronbach's alpha—at least 0.87 for each three-item scale and 0.94 for all six items.¹ This level is usually described as very good to excellent. When asked how well CAS3 helped them improve their staff-officer abilities, 92 percent checked either great extent or very great extent.

Type of CAS3 class. Although the differences by type of class (8+2, 2+2, and DL) were not significant statistically, 100 percent of the DL students rated their improvement as great extent or better.

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When asked which type of class they would prefer if they were to take CAS3 again, 65.5 percent said they preferred the 8+2. Twenty-three percent chose the 2+2, and 11.5 percent selected the DL approach. Interestingly, no 2+2 student preferred the 8+2 approach, while 25 percent preferred the DL approach. Twenty-four percent of the 8+2 students would have opted for the 2+2 approach, with 2 percent taking the DL approach. However, 100 percent of the DL students said they would do DL again if they had the choice.

In terms of overall student ratings of instructors, it was notable that one DL instructor received the highest ratings of any instructor (6.7 average total score).² This score was in comparison with 14.0 for the 2+2 instructors and 10.7 for the 8+2 instructors. Gender and component did not significantly relate to instructor ratings.

Future projections—timing of CGSC. Most students (55.3 percent) said they were planning to take the CGSC Officer Course within 1 to 2 years, 26.3 percent were to take it in 3 to 5 years, and 5.3 percent planned on taking it 6 years or more later. Approximately 13 percent planned to begin CGSC right away. The type of CAS3 course taken was not related to when students planned to take CGSC.

Future projections—format for CGSC. Most students (54 percent) said they expected to take the Inactive Duty Training/Annual Training method of CGSC instruction, 19 percent preferred distance learning (if available), 18 percent preferred the correspondence approach, and 8 percent planned on taking the residence course. Notably, 78 percent of CAS3 DL students planned on taking CGSC by dis-

Compensation	Traditional staff group (% paid)	DL staff group (% paid)
No pay at all	7	50
Retirement points only	8	18
Drill pay	46	9
ADAs (sometimes, in addition to drill pay)	13	18
Travel pay	9	5
RPA man-days (some w/travel pay)	16	0
Totals	99	100

Table 4. Differences in compensation for distance learning and traditional CAS3 classes

tance learning, if possible, compared with 14 percent of 8+2 students and 25 percent of 2+2 students ($p<0.001$).

Component and gender differences in CGSC plans. Surprisingly, USAR and ARNG students did not differ much in their plans for

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taking CGSC, although Active Guard and Reserve and AC students were much more likely to plan on taking CGSC in residence. There were no differences in timing of CGSC as a function of component or gender. Gender was not significantly related statistically to the preferred approach, but it is interesting that 35 percent of female students preferred the DL approach compared with 17 percent of male students. Twenty-one percent of male students (compared to 6 percent of female students) preferred the correspondence option.

Implications

On the negative side, DL classes were rated in a mixed way compared to other classes. Sixty-four percent of DL students cited pros and cons that balanced out to about the same as other learning approaches. However, on specific course gains, the differences between DL and traditional methods were much reduced, although significantly different for two of three variables. Even so, the best DL class was rated better (100 percent to 94 percent) than the average traditional class for improving staff-officer abilities. This indicates that distance learning beats the traditional method when the instructor is proficient.

Within the best DL class, 100 percent of the students said they would take DL again for CAS3, and 78 percent said they would take CGSC by DL if possible. Distance learning saved students significant amounts of travel time and reduced family complaints about the students being away from home, although com-

plaints were slightly higher about the students being home physically but absent emotionally.

Overall, because of increased class time, the first DL classes failed to save students time. With improved software and perhaps hardware and better student training in computer networking, class time will be reduced, and eventually a timesaving will be realized for CAS3 in the DL mode.

CAS3 by distance learning allowed students more flexibility in completing requirements. For example, some students logged into their classes while on business trips to Norway and France, which would have been impossible without the DL method.

The most serious concern about the DL approach has nothing to do with its feasibility or success, both of which were demonstrated by the data. Compensation is a serious issue for DL students, even more so than for traditional CAS3 students. Over half of the RC DL students were not paid for CAS3 participation, compared to less than 20 percent of traditional students. The RC administrative headquarters needs to catch up in respect to compensating DL students adequately.

The most important recommendation gleaned from the research is that the U.S. Army Reserve Command and the National Guard Bureau must consider appropriate ways to provide and regulate compensation for students who participate in military DL courses. A uniform policy for RC students is needed, as indicated by results that between 50 percent and 100 percent of DL CAS3 students were not paid, depending on the region they were from. If a workable, uniform policy is not published, the entire DL program might come to be seen as another case of being asked to do more with less. This might be perceived as giving with one hand (reducing travel time away from home) while taking back with the other (increased class time for staying on-line, being absent emotionally though physically at home). **MR**

NOTES

1. "Cronbach's alpha measures how well a set of items (or variables) measures a single unidimensional latent construct. When data have a multidimensional structure, Cronbach's alpha will usually be low. Technically speaking, Cronbach's alpha is not a statistical test; it is a coefficient of reliability (or consistency). Online at <www.ats.ucla.edu/stat/spss/faq/alpha.html>, accessed 19 June 2003.

2. The students chose Lieutenant Colonel Terry Earnest as the best instructor. The 6.7 score was significantly different from the other two scores as well. Earnest is Acting Commander, 12th Battalion (CAS3), 6th Brigade (PD), 95th Division (IT).